9/30/97

Perchlorate Summary for the Rocketdyne Santa Susana Field Laboratory

Summary of Perchlorate Use and Planned Monitoring

The Boeing (formerly Rockwell), Rocketdyne Division, Santa Susana Field Lab (SSFL) was used primarily for testing liquid rocket engines and for Department of Energy (DOE) research. However, according to Rocketdyne, portions of the site were used to mix solid rocket propellant and test solid rocket motors. So far, Rocketdyne has not provided the regulatory agencies with the locations, quantities and uses of perchlorate at the site. The California Department of Toxic Substances Control (DTSC) has notified Rocketdyne that perchlorate should be added as a chemical of concern for both the RCRA Facility Investigation (RFI) and the groundwater monitoring program, at the locations it was handled. In response, Rocketdyne voluntarily agreed to sample ten groundwater monitoring wells for perchlorate during quarterly groundwater monitoring in August 1997.

In a recent meeting with DTSC, Rocketdyne stated that preliminary data indicated that groundwater samples contained "significant" levels of perchlorate, but they declined to provide specific concentrations until the data has been validated. DTSC plans to work with Rocketdyne to expand perchlorate monitoring and to gain a better understanding of the quantities and locations of perchlorate use at the site.

Rocketdyne discharges surface water from the site at five National Pollutant Discharge Elimination System (NPDES) permitted locations. Three of these monitor surface runoff from the area where DOE research and testing occurred. No perchlorate contamination would be expected at these locations. The other two discharge locations receive process wastewater, treated groundwater and surface runoff from the rest of the site. Surface water from these discharge locations eventually joins the Los Angeles River, which is not a source of drinking water, and flows to the Pacific Ocean. If perchlorate is present in the groundwater, it may not have been removed by the groundwater treatment systems. The Regional Water Quality Control Board (RWQCB), Los Angeles Region, is currently revising Rocketdyne's NPDES permit to include perchlorate monitoring at the two discharge locations that may contain it. RWQCB expects to issue the revised permit in early 1998.

Site Background

The SSFL was established in 1946. It is located in eastern Ventura County and covers approximately 2,700 acres, see Figure 1. Rocketdyne has divided the site into four administrative areas (Areas I, II, III and IV) and a buffer zone, see Figure 2. Rocketdyne owns most of Area I and all of Area III. NASA owns Area II and a 42-Acre parcel of Area I, but Rocketdyne operates Area II facilities on behalf of NASA. Areas I, II and III were all primarily used for Rocket engine development and testing. Rocket engine test facilities at the site included Bowl, Canyon, STL-IV, ALFA, Bravo, Coca, Delta and Atlas/Delta. These are shown in Figure 3.

SFD-7-3

Kevin

Larry Bowerman, Chief of the RCRA Corrective Action Section, suggested I pass this on to you. I'll update it as I get more info.

— Tom Kelly
x 2070

Rocketdyne also owns all of Area IV, but has leased a 90-acre portion to DOE since the 1950s. This 90-acre portion of Area IV is called the Engineering and Energy Technology Center (ETEC). Within ETEC, Rocketdyne conducted nuclear energy research and testing for DOE. No rocket engine testing or development occurred within Area IV.

Permit Status

DTSC has approved closure plans for ten surface impoundments, only one of which was clean closed. The other nine are covered by post-closure permits issued by DTSC in 1994. The impoundments were used to retain TCE contaminated wastewater from the rocket engine test stands. As part of the post-closure permit application process, DTSC required Rocketdyne to characterize the nature and extent of groundwater contamination from the units receiving post-closure permits. Because of this, a significant amount of investigation into the nature and extent of groundwater contamination has proceeded ahead of the RFI. Groundwater contamination consists of chlorinated solvents, primarily TCE. Figure 4 shows the extent of TCE contamination in groundwater in the Chatsworth formation. It also shows the remaining areas of groundwater contamination that Rocketdyne has not yet characterized, beyond the site's northwest, north central and northeast boundary.

In addition to the post-closure permits, the facility also has a number of RCRA storage areas and two open burn/open detonation areas. One of these, the Thermal Treatment Facility (noted in Figure 3), may have been used to burn rocket propellants containing perchlorate. Rocketdyne has already implemented the DTSC approved closure plan for the Thermal Treatment Facility. However, DTSC may have sufficient authority to revisit their decision if necessary. With the exception of the surface impoundments closed with waste in place, hazardous wastes have not been disposed of on-site. For this reason, perchlorate disposal at the SSFL is unlikely.

Corrective Action Status

Although the site has been investigating and remediating groundwater contamination since the mid 1980s, corrective action began with DTSC's issuance of a corrective action order in 1992. DTSC's order was based on an EPA Draft RCRA Facility Assessment from 1991, which was later finalized in 1994. The site is currently conducting the fieldwork for their RFI, which focuses on soil contamination. Additionally, Rocketdyne is planning to install an additional 17 groundwater monitoring wells as part of the work required by their post-closure permits.

State Follow-up Activities

At the time DTSC expressed their concerns about perchlorate, Rocketdyne did not have an opportunity to discuss well selection with DTSC prior to monitoring. Consequently, DTSC expects Rocketdyne to provide the details of perchlorate use at the site, along with the monitoring results, to support their well selections. Furthermore, if Rocketdyne's preliminary data is correct, DTSC will likely request that Rocketdyne monitor additional wells for perchlorate. The quarterly groundwater monitoring report is expected in November, but DTSC

will request that Rocketdyne provide perchlorate data as soon as it has been validated. Also

mentioned earlier, RWQCB plans to add perchlorate to the NPDES permit for the SSFL.

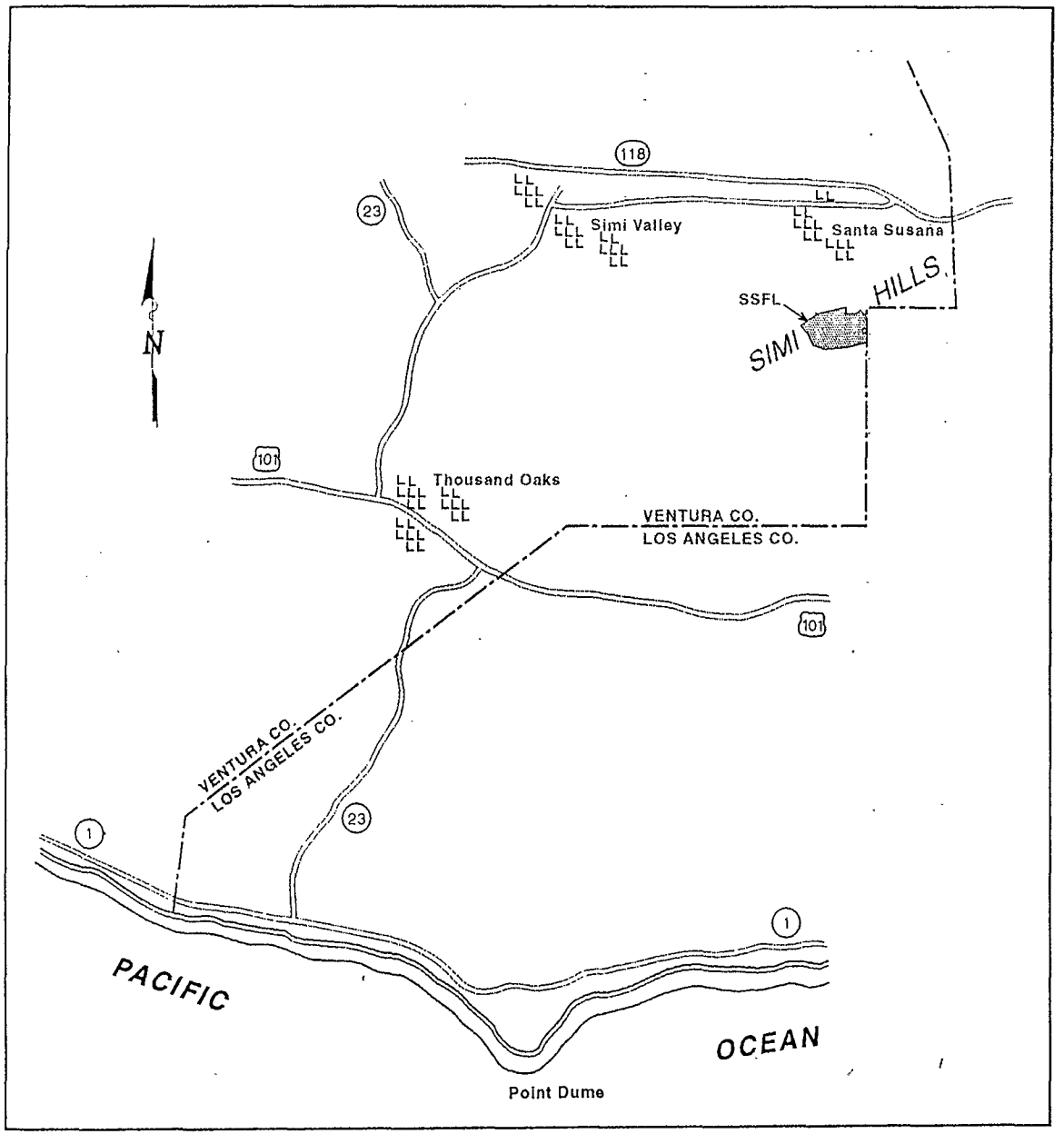
Rocketdyne Response

Rocketdyne has been cooperative with DTSC and responsive to EPA's inquiries on perchlorate. While they have voluntarily agreed to monitor wells for perchlorate, they are concerned that the method is so new they could only find one lab to perform it in accordance with the new test method.

EPA Follow-up/Recommendations

This summary was prepared in cooperation with the Glendale office of DTSC and the Los Angeles Region of RWQCB. A copy has been provided to both agencies for comment. Consequently, it may be revised based on their input. Tom Kelly will contact DTSC in one month to six weeks to discuss Rocketdyne's groundwater monitoring results for perchlorate and to ask about the information provided by Rocketdyne on the locations, amounts and uses of perchlorate at the site. Tom has also contacted the RWQCB and suggested that they approach Rocketdyne about voluntarily monitoring two of their NPDES discharge locations for perchlorate.

file: K:\ROCKWELL\PERCHL.SUM



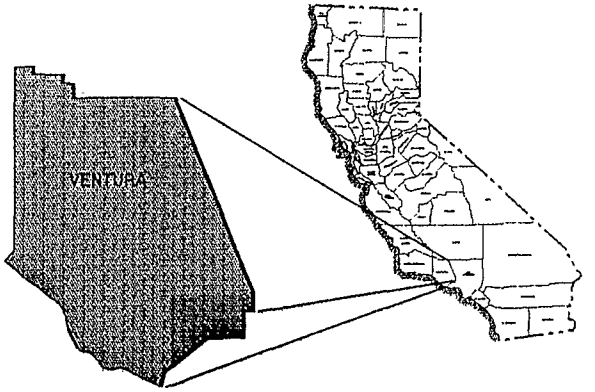




FIGURE 1
LOCATION MAP

State Water Resources Control Board

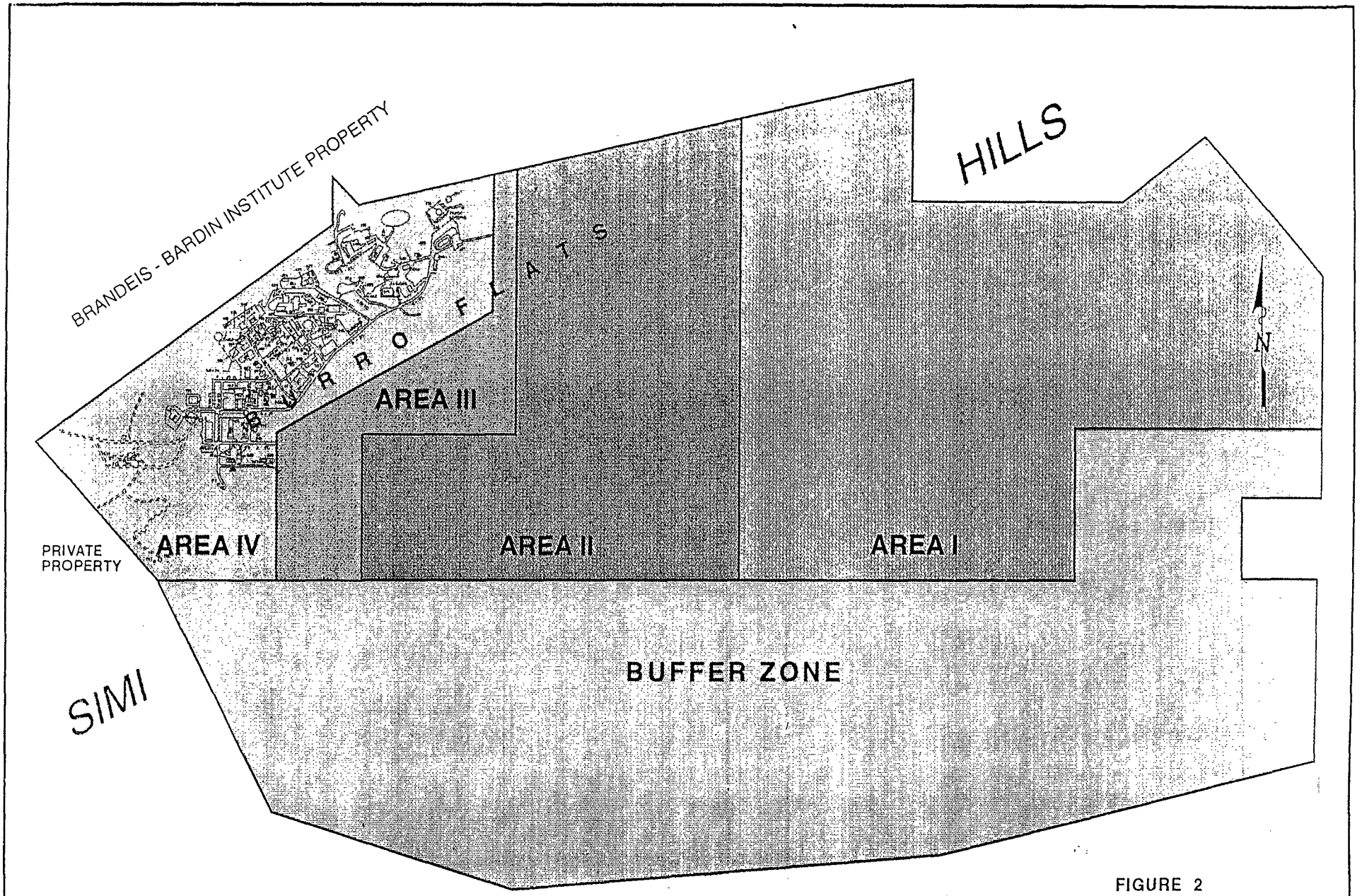
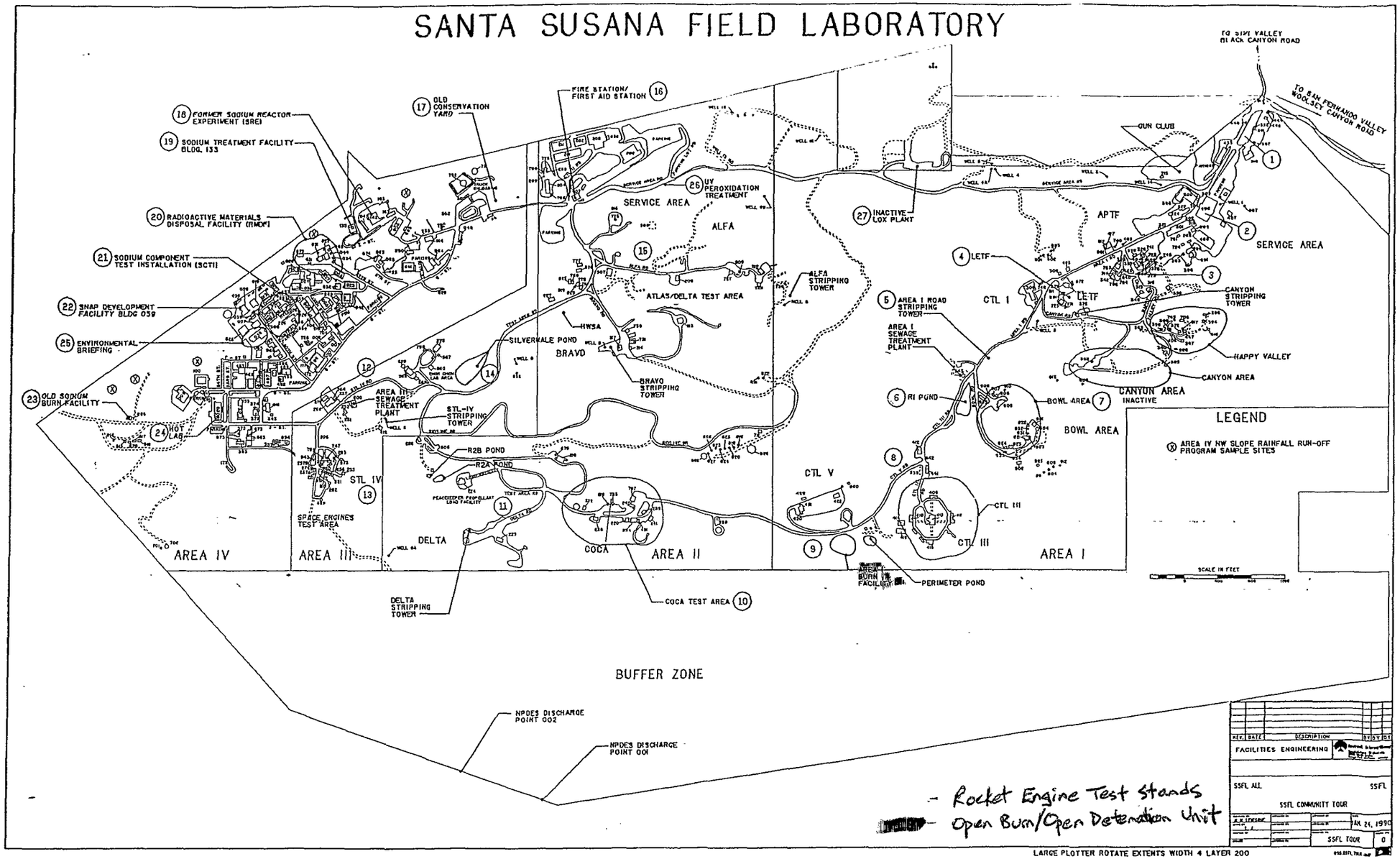



FIGURE 2

SANTA SUSANA FIELD LABORATORY

State Water Resources Control Board

# SANTA SUSANA FIELD LABORATORY




- Rocket Engine Test Stands

- Open Burn/Open Detonation Unit

FACILITIES ENGINEERING

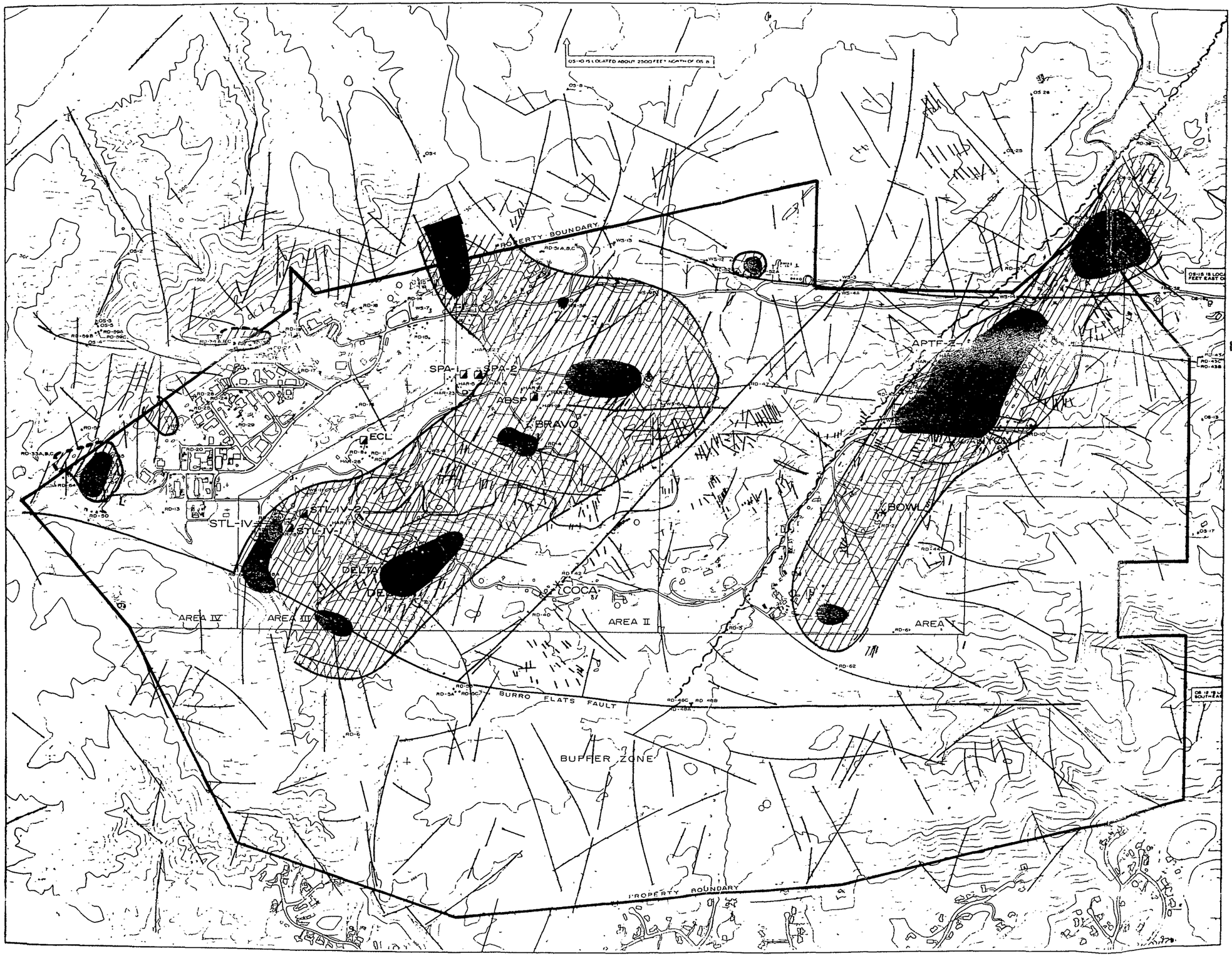
SSFL ALL SSFL

SSFL COMMUNITY TOUR

JAN. 24, 1990

SSFL TOUR 0

LARGE PLOTTER ROTATE EXTENTS WIDTH 4 LAYER 200




EXPLANATION

- FRACTURE LINEAMENTS BASED ON AERIAL PHOTO AND TOPOGRAPHIC DRAINAGE PATTERNS
- SHEAR ZONE
- RD-1 CHATSWORTH FORMATION WELL
- OS-8 SPRING
- ACTIVE TEST STAND
- FORMER OR INACTIVE TEST STAND
- RCRA IMPOUNDMENT
- 5 μg/l TCE — APPROXIMATE LATERAL EXTENT OF TRICHLOROETHYLENE (TCE) CONCENTRATIONS ≥ 5 MICROGRAMS PER LITER
- 100 μg/l TCE — APPROXIMATED LATERAL EXTENT OF TCE CONCENTRATIONS ≥ 100 MICROGRAMS PER LITER

NOTES:
BASED ON MOST RECENT 1986 DATA WITH SOME ADDITION OF HISTORICAL DATA USED FOR THE RD-6&8 CLUSTER.

THE MAXIMUM CONTAMINANT LEVEL (MCL) FOR TCE IS 5 MICROGRAMS PER LITER.

1986 Annual Groundwater Monitoring Report

BOEING NORTH AMERICAN, INC.
ROCKETDYNE DIVISION
SANTA SUSANA FIELD LABORATORY

APPROXIMATE LATERAL EXTENT OF TCE CONTAMINATION CHATSWORTH FORMATION 1986

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